

Application/Control Number: 10/652,071

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Art Unit: 2800

CLMPTO

04/20/05

1. A film thickness measurement apparatus for measuring a thickness of a film formed on an object, comprising:

- ; a first light source for emitting a polarized light to an object;
- a light receiving part for receiving a reflected light of said polarized light from said object to acquire a polarization state of said reflected light;
- an calculation part for obtaining a thickness of a film on said object on the basis of said polarization state;
- ; a second light source for emitting an illumination light;
- an optical system for guiding said illumination light to said object and guiding a reflected light of said illumination light from said object to a predetermined position;
- a light shielding pattern disposed at a position almost optically conjugate to an aperture stop position on an optical path from said second light source to said object; and
- ; an imaging part for acquiring an image of said light shielding pattern formed on said predetermined position,  
    wherein said calculation part obtains a tilt angle of said object on the basis of an output from said imaging part and obtains a thickness of said film from said polarization state, by using said tilt angle.

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2. The film thickness measurement apparatus according to claim 1, further comprising:

- a filter disposed at a position almost optically conjugate to a field stop position on an optical path from said second light source to said object,  
    wherein said filter cuts off a light of at least specific wavelength at a portion out

of a portion corresponding to a microscopic region on said object.

3. The film thickness measurement apparatus according to claim 1, wherein  
said calculation part obtains said tilt angle on the basis of a vector between a  
predetermined reference position and a barycentric position of an image of said light  
shielding pattern in an image indicated by said output from said imaging part.

Cancelled claims 4-20